OCCURRENCE OF BACTERIAL LEACHING IN URANIUM MINE EFFLUENTS, ORE TREATMENT UNIT, CALDAS, MG, BRAZIL

Heliana. A. F. Nascimento[a]*, M. B. Campos[a], S. Rodgher[b], C. V. Roque[a], A. L. Bruschi[a] and M. R. L. Nascimento[c]

[a] Radioecology Laboratory/Poços de Caldas Laboratory, Brazilian Nuclear Energy Commission, Poços de Caldas, Brazil

[b] Universidade Estadual Paulista "Júlio de Mesquita Filho", São José dos Campos, SP, Brazil

[c] Chemical Analyzes Laboratory/Poços de Caldas Laboratory, Brazilian Nuclear Energy Commission, Poços de Caldas, Brazil

2016 Rio norm VIII

LAPOC Poços de Caldas Laboratory

CNEN Brazilian Nuclear Energy Commission

Science and Technology, Ministry

BRASIL BRAZILIAN GOVERNMENT

Introduction and Objectives

- The sulfated minerals present in mining areas may cause serious environmental problems due to leaching bacteria action.
- Leaching *bacteria*, such as *Acidithiobacillus ferrooxidans* and *A. thiooxidans* are able to oxidize sulfated minerals and mobilize metals such as uranium for the environment.
- The condition for bioleaching in uranium ores is the presence of metallic sulfides such as pyrite (FeS_2) associated with the ore, which occurs in the ore and waste rock of the uranium Ore Treatment Unit (UTM), Brazil.

Then, the goals of this study were:

- To evaluate bioleaching potential by carrying out a seasonal and spatial characterization of the *A. ferrooxidans* and *A. thiooxidans* in the effluents coming from Ore Treatment Unit;
- To perform chemical and radiological analyses to assess the influence of the uranium mining effluents on surface water quality.

Main Remarks

- *A. ferrooxidans and A. thiooxidans* presented remarkable seasonal and spatial variation in the 8 different evaluated sampling sites.

- Water from sampling site 76 located at the interface UTM-environment was considered susceptible to mine acid drainage and the activity of bioleaching bacteria.

You are welcome to visit my poster!!!!

Number 144

Poster session: Environmental Impact

Heliana A. F. Nascimento
hazevedo@cnen.gov.br